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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/821,781

04/09/2004

Stefan Barkaro

5497-110/P04-102/UK/YUM/2

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05/14/2009

COATS & BENNETT/INFINEON TECHNOLOGIES

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SUITE 300

CARY, NC 27518

EXAMINER

JAMAL, ALEXANDER

ART UNIT

PAPER NUMBER

2614

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/821,781	<b>Applicant(s)</b> BARKARO ET AL.	
	<b>Examiner</b> ALEXANDER JAMAL	<b>Art Unit</b> 2614	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 February 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Based upon the submitted amendment, the examiner notes that claims 1-3,5-7,9,10 have been amended.
2. The examiner withdraws the 112 first paragraph rejection concerning ‘transmitted signal’ inputs to the amplifier stage in light of applicant’s admission (remarks page 7) that one skilled in the art would know how to interface a feedback path with a transconductance amplifier with a signal to be transmitted to be input into an amplifier stage (such as amplifier 3 in applicant’s figure 2). The examiner stresses that applicant has not provided any details as to how the signal is coupled. This is disturbing in fact that applicant is claiming circuit level claim elements (see claims 1-10) without providing the complete circuit interface (namely the interface between the signal to be transmitted and the transconductance feedback paths).
3. Likewise the examiner reads the new claim element of ‘the driver/termination impedance’ to mean that the amplifier output impedance is matched to the load impedance of the device it is driving. The examiner notes that applicant’s device will not actually exactly match the load device. The examiner reads this claim element as the well known concept of designing a line driver with impedance as close as reasonably possible to the average impedance of the load. This is a well known and widely used concept which is based on the fact that matching impedances provides maximum power transfer (minimum reflections). The examiner reads this as well known in the prior art, and notes that applicant’s

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specification has not provided any concrete way of exactly ‘matching’ a driver output impedance to a load in a communications system.

4. The examiner contends that the previous set of rejections made in the 6-24-2008 rejection may still read on the claims, but examiner is unable to determine the exact circuitry/functional relationships being claimed (see 112 rejections below).

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the means for coupling the claimed ‘transmit signal’ along with the claimed input terminals receiving the signals from the transconductance stages must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

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application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. **Claims 1-10** rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

**Claims 1,3,7, (and all dependants)**, further recites first impedances which are 'complex impedances to match the load impedance, and are of an impedance value that is much smaller than the impedance value of the load'. It is not clear what the exact relationship between the each individual impedance value and the load impedance is so that they 'match'. Furthermore, it is not clear how the complex impedances can 'match' the load impedance yet still be of an impedance value that is 'much smaller' than said load impedance. Applicant's specification makes the same statement. Since there are no

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concrete examples or values or specific implementations given, then examiner contends one skilled in the art would not understand the claimed relationships.

Additionally, the claims as amended recite that the claimed ‘impedances’ are ‘much smaller’ than a load. Without concrete values or specific implementation examples, there is no way for one skilled in the art to determine what the relative size (much smaller) would be as recited in the claim.

**Claims 2,6,10, (and all dependants)**, recites a value  $k$  which is a function of the line driver and transconductance driver gains. Applicant’s specification gives no real world values or implementation of gains and impedance combinations. The relationship between the transmitter gain, and the transconductance amplifier gains, as well as the **interface** in the feedback path from the transconductance stages to the input of the transmitter. Applicant has claimed a relationship that is **indeterminate** because the disclosed circuit is incomplete and no functional relationships between the gain stages are given.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 1-10** rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per **claims 1,3,7**, the claims cite first equal impedances that are an impedance value that is 'much smaller' than a load impedance. The examiner contends that since there are no specific values or examples or even specific protocol or load values disclosed, it is not clear what 'much smaller' would refer to.

### ***Response to Arguments***

1. Applicant's arguments have been fully considered but they are not persuasive.

As per applicant's arguments concerning the drawings, the examiner notes that the feedback signal is not the transmit signal, as claimed by applicant in remarks page. As per applicant's comments that the coupling of the driver output to Zload comprises the transmit signal, the examiner disagrees. The objection to the drawings (and subsequent 112 rejection) are based on the fact that applicant's drawings do disclose the details of the interconnection between a feedback path inputs and the input of the signal to be transmitted as they are being input into the amplifier stage. Applicants drawings do not where the 'transmitted signal' is sent into the amplifier (such as amplifier 3 in applicant's figure 2).

As per applicant's arguments that the 'k' term is defined and enabled by the specification, the examiner notes that the specification only states that 'k is a function of the gains of the line driver (3) and the trans-conductance amplifiers (4,5)'; however the specification does not specify what that relationship is. Applicant's specification is incomplete in reciting the full relationships and applicant's drawings do not recite the full interface as the transmission signal inputs are not shown, accounted for or described in the draws or specification. How is one

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skilled in the art supposed to implement this device when these critical features are not disclosed ?

As per applicant's arguments concerning the clarity of the 'much smaller' phrase used in the claims, the examiner maintains that the relationship is not clear.

As per applicant's arguments concerning the disclosure of the complex impedances with the resistances, the examiner agrees with applicant and withdraws that rejection.

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 571-272-7498, and whose email address is alexander.jamal@uspto.gov



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The examiner can usually be reached on M-F 8AM-5PM.

If attempts to reach the examiner by telephone or email are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 571-272-7499.

The fax phone numbers for the organization where this application or proceeding is assigned are **571-273-8300** for regular communications and **571-273-8300** for After Final communications.

/Alexander Jamal/

Primary Examiner, Art Unit 2614

Examiner Alexander Jamal

May 14, 2009